the seat of the injury, i. e. hematoma or fracture by contre-coup, a change of note on percussion will denote the presence of this condition.

It is advisable in all instances of cranial injury to carefully percuss the whole of the skull.

From the experience gained from these few cases and of others, which have not been included in this paper as no autopsy or operation was made to verify the diagnosis, the writer believes that a tympanitic note over the pterion (unilateral or bilateral) is strong presumptive evidence of the existence of dilatation of the lateral ventricles; especially would this finding be of value if found in cases in which the signs and symptoms of meningitis were rather equivocal, which is not infrequently the case. The case of subdural hemorrhage further shows that a tympanitic note may be obtained in encapsulated collections of fluid situated subdurally or extradurally.

The case of fracture of the temporal bone likewise shows its value. Exceptions to these statements are to be found in those instances of brain tumors causing erosion of the bone or separation of the fissures, or where an atrophy of one or both hemispheres exists.

Discussion.

Dr. J. M. Wolfsohn: I would like to add just one statement. In eliciting the tympanitic note or a flattened high-pitched note which is occasionally found in intracranial growths, mistakes can often be made in interpretation by allowing the patient's head to rest on a pillow. If this is done the hollow sound, which is really due to the contact with the pillow, is almost invariably brought forth. I saw a case several months ago with Dr. Rixford where the note elicited was sufficient to make a diagnosis of hydrocephalus while the patient's head was on the pillow, but on lifting the head the percussion note was found to be the same on both sides.

GUN-SHOT WOUND OF THE EAR WITH REPORT OF TWO CASES.*

By CULLEN F. WELTY, M. D., San Francisco.

Patient, J. T., male, age 23, was shot in the right ear in September 1909. Patient was in a local hospital for one month after he was hurt because of intense vertigo, nausea and vomiting. Facial paralysis was observed on the day following the accident.

Examination, September 1910: Face, complete paralysis. On the injured side the eye cannot be closed; cheek muscles are flabby, all lines obliterated and forehead smooth; mouth is drawn to the opposite side. The condition is accentuated when patient smiles. No response to either faradic or galvanic current. No nystagmus or vertigo. Ear: foul discharge, the meatus considerably contracted from the gunshot wound. The scar is about a quarter of an inch within the meatus, posterior and above. Because of the contracted meatus and the destruction, the parts cannot be recognized. From the location of the scar it is reasonable to believe that the facial was not cut but pressed upon by a fracture. By tuning fork: Weber to the good ear: Rinné negative, heard in the good ear; injured ear completely deaf as proved by Neumann's noise apparatus; caloric reaction negative. By Roentgen ray: bullet located in the petrous portion of the temporal bone.

With a bullet located within the petrous portion of the temporal bone, no hearing on the injured side, caloric reaction negative, the proof is almost positive that the facial nerve is so destroyed that it can never regain function.

Operation: the ordinary radical mastoid operation was performed to remove the bullet and the chronic suppurative process; the entire posterior wall was found to be destroyed by the gunshot; tegmen tympani and antri, intact; no other fracture apparent macroscopically; bullet imbedded to its depth in the region of the promontory of the petrous portion of the temporal bone.

Case 2. Male, age 24. Gunshot wound of the right ear; has been under observation for the past week. Complains of vertigo, double vision, some slight pain on this side of the head; some headache all the time.

Examination: Almost healed wound of the meatus of the right ear. The drum membrane cannot be seen because of blood-clots. Slightly painful over the entire mastoid; more painful over the temporal region. Marked nystagmus to the opposite side, double vision, paralysis of the external rectus, eye backgrounds negative, partial facial paralysis.

Tuning fork examination: Weber to the bad ear, Schwabach lengthened, Rinné, negative; nystagmus to the same side by the introduction of hot water. Temperature from 98°-99½°.

X-ray located the bullet in the middle fossa. The patient was kept under observation for an additional two weeks. At this time it was three weeks from the time the patient was injured. The symptoms remained about the same from day to day; a variation of about a half a degree in temperature. This was about all until the end of the third week, then the temperature went to 103½°; increase of pain about the head; increase of nystagmus; double vision more marked; facial more complete; eye backgrounds negative. Operation the following day.

Findings: Operation by way of the radical mastoid. Large pneumatic mastoid full of pus everywhere. The posterior wall was intact. The attic wall was entirely destroyed by the gunshot wound; the tegmen tympani was destroyed the size of a twenty-five cent piece; brain tissue protruding from the torn dura, and the whole was bulging into the middle ear. The radical mastoid was completed in every detail before I began to search for the bullet. The route of entrance of the bullet was followed within the temporosphenoidal lobe to the depth of one and one-half inches when an abscess cavity was encountered that contained the bullet. The bullet was removed, the cavity was cleaned with sterile gauze and packed with iodoform gauze; mastoid dressing completed; wound left open.

Following day temperature normal, patient quite comfortable. The second day following operation the first dressing was made; as the gauze was removed from the abscess cavity, could observe same. The cavity looked healthy in every detail, besides the edema of the brain that was present prior to operation had entirely subsided and I said at the time that the patient would recover. All operations on the brain for abscess, where the abscess has been found and not followed by edema and protrusion of the brain itself, have recovered; while a small percentage of the cases recover when the brain becomes edematous and protrudes through the incision of the dura. This is a very valuable point and one worth remembering for prognostic purposes.

The patient continued to improve and was finally discharged well.

The reason for reporting these two cases is to call attention to the route the surgeon should pursue in gunshot wounds of the ear. In the first case the bullet could not have been removed in any other way. In the second case the operation of entering the brain and removing the bone was

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largely done by the entering missile. Entering the middle fossa by this route, you are well under the temporosphenoidal lobe, drainage is at the best possible point and the brain has not to be subjected to the additional traumatism.

In conclusion I wish to emphasize that in all gunshot wounds of the ear where operation is indicated, the one of selection should be by the radical ear operation.

Discussion.

Dr. Robert Miller, Los Angeles: I am sorry I did not hear all of Dr. Welty's paper. Some years ago I saw, in consultation, a man about thirty-five years of age, who, several days previously, shot himself with suicidal intent. The weapon used was a cheap one of 44-calibre. Upon calling later at the police station, I learned that a "short" cartridge had been used. The missile had entered the external auditory meatus on the right side. The wound was full of pus, and paralysis of the right side of the face was complete. The pulse was about eighty, and very feeble, and patient very pale and weak. He declined operative interference. I saw him but once. Contrary to expectations, he recovered sufficiently to stand trial for attempting to murder two women, whose hands he had vainly sought in marriage, the attempt upon their lives having been made immediately prior to that upon his own.

He was convicted and sentenced to the penitentiary for two years. I very much regret not having sufficient data to be able to make a more complete report of this case. The chief point of interest is that with such a wound, a partial recovery was possible.

REPORT OF AN UNUSUAL CASE OF LABYRINTHINE DEAFNESS.*

By G. P. WINTERMUTE, M. D., San Francisco.

Name, Mrs. M. W. Nativity, U. S. A. Age, 42. occupation, housewife. Referred from the Medical Clinic with the following history:

Family History: Mother died at 61 years of heart trouble; had always been very nervous; eyes had been operated on leaving her blind. Father died at 71 years, pneumonia. One sister alive and well, no brothers. Some relatives died of T. B.

Present History: Childhood. Patient had measles, whooping cough, chicken pox, no jaundice, rheumatic fever (?)—in general a strong child. Later life. No jaundice, malaria in Stockton 20 years ago, did not have a doctor, questionable. Eyes, negative. Nose, catarrh intermittent beginning about 18 years. Ears, about 15 years ago had an abscess in left ear, treated by a doctor. That went away and since then to present time has had no trouble with ears, except after dizzy spells, which left a numb feeling for a few minutes.

Head: Dizzy spells started at about 14 years, came at irregular intervals—sometimes four a week, and sometimes only one in several weeks. Spells may come when walking, sitting or even in the middle of the night. There is a feeling of closeness, a rushing of blood to the head, together with a vomiting, without a feeling of sickness; dizziness. As soon as gas is brought up and patient walks about a little, there is relief—attack lasts about five minutes—very weak after attack.

Throat: At time of abscess in ear, patient had a (quinzy) sore throat. Respiratory system, negative. Circulatory system: At time of attacks patient describes a darkening about lower part of face; no piles; no palpitations. Digestive system: No constipation; at time of spells there seems to be a retching of stomach bringing up gas and sometimes stomach contents brought up; no feeling of sickness. Has had a hernia and has been operated on; possibly a ruptured appendix with much pus. Urinary system: Negative; urine gets dark at times. Menstrual history: Started at 14 years, normal. Dizzy spells apt to come either just before or after period.

Married Life: Had a child at 24 years; child well; patient well since. Married at 35 years; no miscarriages; husband alive and well; has two boys alive and well. Has had considerable nerve strain and general worry. Does not drink ale.

At 14 years of age patient started to have certain attacks which seemed to come either just before, during, or immediately after menstrual period. The attack is characterized by a feeling of light-headedness, which is associated with a buzzing or swishing in ears. Patient becomes very faint but does not become unconscious; she becomes dark in the lower part of the face; she seems to see things double with both eyes and after extreme retching of stomach—which is not associated with any pain—much gas is emitted, and after that and walking a little, patient feels immediate relief. After attack patient is left quite weak and the attack lasts only about five minutes.

Lately the patient has noticed that about an hour or so after an emotional strain, attack is apt to come on. Onset is always sudden and without apparent cause, though sometimes a quick movement or strained and sustained position seems to be a predisposing cause. (See note in ear, nose and throat history.)

September 23rd, at 10:30, while writing a letter—had been under emotional strain for several weeks and culminating point associated with writing of letter—typical attack set in, this time associated with vomiting due to retching without any feeling of sickness. Patient had eaten an unusualy hearty supper. For three days the vomiting continued at intervals and dizziness also remained. Patient remained in bed four days; no fever; lips dry; tongue coated white; took citrate of magnesia. Patient too weak to get up. A deafness of right ear (partial) has remained until present time; now patient cannot walk straight and has a kind of fullness at base of brain and a feeling of constriction about entire head; no pain; no soreness of eyeballs.

Present Examination (Dickson). Patient well developed, fairly well nourished. Face flushed and cyanotic. Pulse 80, regular. Temp. 98° (9:30 a. m.). Pupils equal, react readily, fields (rough test) apparently not restricted, evident moderate anemia (sclerae pearly white). Eye movements O. K. Tongue large, coated. Teeth well kept, pharynx congested. No enlargement, thyroid or cervical lymph nodes. Chest movements equal, not very wide excursion. Vocal fremitus greater on right side. Percussion shows no impairment. Auscultation shows harsh breath sounds with few moist rales over both apices after coughing, and over both bases behind.

Heart not enlarged. Sounds at apex show definite presystolic murmur, with sharp first sound, also slight systolic at aorta transmitted to the neck; occasional premature contraction noted. Liver not enlarged or tender. Spleen not felt. Abdomen loose, scars of old operation, wound in median line; and drainage puncture wound below umbilicus, and behind, on left side. Marked tenderness on pressure over McBurney's point. No other tender foci found.

Legs and ankles slightly swollen. Knee kicks, active and equal. Patient not examined as to neurological condition. Evident diagnosis is mitral stenosis, slight decompensation. Given infusion digitalis, drachm 1—three times a day. To keep as quiet as possible.

October 7. Patient returned. Still has sensation in head. Vision is still disturbed, when first goes into the light. Has not been coughing or short of

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